

WHAT IS CLAIMED IS:

1. A wiring having a layered structure including a first conductive layer with a first width as a first layer, a second conductive layer with a second width
5 smaller than the first width as a second layer, and a third conductive layer with a third width smaller than the second width as a third layer,

wherein a cross-section of edges of the first conductive layer, the second conductive layer, or the third conductive layer has a taper shape.

- 10 2. A wiring according to claim 1, wherein the first conductive layer comprises at least one selected from the group consisting of W and Mo.

3. A wiring according to claim 1, wherein the second conductive layer comprises Al.
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4. A wiring according to claim 1, wherein the third conductive layer comprises Ti.

5. A wiring according to claim 1, wherein the second conductive layer is
20 covered with the first conductive layer, the third conductive layer, and an insulating film, and a region contacting the insulating film is oxidized.

6. A wiring according to claim 1, wherein the wiring is used for at least one selected from the group consisting of a liquid crystal display device and a
25 light-emitting device.

7. A method of manufacturing a wiring comprising the steps of:
forming a first-shaped conductive layer comprising a lamination of a first conductive layer, a second conductive layer, and a third conductive layer on an
30 insulating surface;

etching the first conductive layer, the second conductive layer and the third conductive layer to form a second-shaped conductive layer comprising a lamination of the first conductive layer with a first width, a second conductive layer with a second width, and a third conductive layer with a third width; and

5 etching the second conductive layer with the second width and the third conductive layer with the third width to form a third-shaped conductive layer comprising a lamination of a first conductive layer with a fourth width, a second conductive layer with a fifth width, and a third conductive layer with sixth width,

wherein a cross-section of edges of the first conductive layer, the second
10 conductive layer, or the third conductive layer has a taper shape.

8. A method of manufacturing a wiring comprising the steps of:

forming a first-shaped conductive layer comprising a lamination of a first
conductive layer, a second conductive layer, and a third conductive layer on an
15 insulating surface;

etching the second conductive layer and the third conductive layer to form a
second-shaped conductive layer comprising a lamination of the first conductive
layer, a second conductive layer with a first width, and a third conductive layer with
a second width;

20 etching the first conductive layer to form a third-shaped conductive layer
comprising a lamination of a first conductive layer with a third width, the second
conductive layer with the first width, and the third conductive layer with the second
width; and

etching the second conductive layer with the first width and the third
25 conductive layer with the second width to form a fourth-shaped conductive layer
comprising a lamination of a first conductive layer with a fourth width, a second
conductive layer with a fifth width, and a third conductive layer with a sixth width,

wherein a cross-section of edges of the first conductive layer, the second
conductive layer, or the third conductive layer has a taper shape.

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9. A method of manufacturing a wiring comprising the steps of:

forming a first-shaped conductive layer comprising a lamination of a first conductive layer, a second conductive layer, and a third conductive layer on an insulating surface;

5 etching the first conductive layer, the second conductive layer and the third conductive layer to form a second-shaped conductive layer comprising a lamination of the first conductive layer with a first width, a second conductive layer with a second width, and a third conductive layer with a third width;

etching the second conductive layer with the second width and the third
10 conductive layer with the third width to form a third-shaped conductive layer comprising a lamination of a first conductive layer with a fourth width, a second conductive layer with a fifth width, and a third conductive layer with sixth width;
and

subjecting the third-shaped conductive layer to a plasma treatment,

15 wherein a cross-section of edges of the first conductive layer, the second conductive layer, or the third conductive layer has a taper shape.

10. A method of manufacturing a wiring comprising the steps of:

forming a first-shaped conductive layer comprising a lamination of a first
20 conductive layer, a second conductive layer, and a third conductive layer on an insulating surface;

etching the second conductive layer and the third conductive layer to form a
second-shaped conductive layer comprising a lamination of the first conductive
layer, a second conductive layer with a first width, and a third conductive layer with
25 a second width;

etching the first conductive layer to form a third-shaped conductive layer
comprising a lamination of a first conductive layer with a third width, the second
conductive layer with the first width, and the third conductive layer with the second
width;

30 etching the second conductive layer with the first width and the third

conductive layer with the second width to form a fourth-shaped conductive layer comprising a lamination of a first conductive layer with a fourth width, a second conductive layer with a fifth width, and a third conductive layer with a sixth width; and

- 5 subjecting the fourth-shaped conductive layer to a plasma treatment, wherein a cross-section of edges of the first conductive layer, the second conductive layer, or the third conductive layer has a taper shape.

11. A method of manufacturing a wiring according to any one of claims 7 to 10, wherein the first conductive layer comprises at least one selected from the group consisting of W and Mo.

12. A method of manufacturing a wiring according to any one of claims 7 to 10, wherein the second conductive layer comprises Al.

13. A method of manufacturing a wiring according to any one of claims 7 to 10, wherein the third conductive layer comprises Ti.

14. A method of manufacturing a wiring according to any one of claims 7 to 10, wherein the plasma treatment is conducted by using oxygen or a gas mainly containing oxygen, or H_2O .

15. A wiring board comprising an insulating substrate and wiring, wherein the wiring has a layered structure including a first conductive layer with a first width as a first layer, a second conductive layer with a second width smaller than the first width as a second layer, and a third conductive layer with a third width smaller than the second width as a third layer, wherein a cross-section of edges of the first conductive layer, the second conductive layer, or the third conductive layer has a taper shape.

16. A wiring board according to claim 15, wherein the first conductive layer comprises at least one selected from the group consisting of W and Mo.

17. A wiring board according to claim 15, wherein the second conductive layer comprises Al.

18. A wiring board according to claim 15, wherein the third conductive layer comprises Ti.

19. A wiring board according to claim 15, wherein the second conductive layer is covered with the first conductive layer, the third conductive layer, and an insulating film, and a region contacting the insulating film is oxidized.

20. A wiring board according to claim 15, wherein a liquid crystal display device or a light-emitting device is manufactured by using the wiring board.

21. A method of manufacturing a wiring board comprising the steps of:
forming a first-shaped conductive layer comprising a lamination of a first conductive layer, a second conductive layer, and a third conductive layer on an insulating surface;

etching the first conductive layer, the second conductive layer and the third conductive layer to form a second-shaped conductive layer comprising a lamination of a first conductive layer with a first width, a second conductive layer with a second width, and a third conductive layer with a third width; and

etching the second conductive layer with the second width and the third conductive layer with the third width to form a third-shaped conductive layer comprising a lamination of a first conductive layer with a fourth width, a second conductive layer with a fifth width, and a third conductive layer with the sixth width,

wherein a cross-section of edges of the first conductive layer with the fourth

width, the second conductive layer with the fifth width, or the third conductive layer with the sixth width has a taper shape.

22. A method of manufacturing a wiring board comprising the steps of:

5 forming a first-shaped conductive layer composed of a stack of a first conductive layer, a second conductive layer, and a third conductive layer on an insulating surface;

etching the second conductive layer and the third conductive layer to form a second-shaped conductive layer comprising a lamination of the first conductive layer, a second conductive layer with a first width, and a third conductive layer with a second width;

10 etching the first conductive layer to form a third-shaped conductive layer comprising a lamination of a first conductive layer with a third width, the second conductive layer with the first width, and the third conductive layer with the second width; and

15 etching the second conductive layer with the first width and the third conductive layer with the second width to form a fourth-shaped conductive layer comprising a lamination of a first conductive layer with a fourth width, a second conductive layer with a fifth width, and a third conductive layer with a sixth width, wherein a cross-section of edges of the first conductive layer with the fourth width, the second conductive layer with the fifth width, or the third conductive layer with the sixth width has a taper shape.

23. A method of manufacturing a wiring board comprising the steps of:

25 forming a first conductive layer on an insulating surface;

forming a second conductive layer on the first conductive layer;

forming a third conductive layer on the second conductive layer;

etching the first to third conductive layers to form a conductive layer with a taper portion; and

30 subjecting the conductive layer with a taper portion to a plasma treatment.

24. A method of manufacturing a wiring board comprising the steps of:

forming a first-shaped conductive layer comprising a lamination of a first conductive layer, a second conductive layer, and a third conductive layer on an
5 insulating surface;

etching the first conductive layer, the second conductive layer and the third conductive layer to form a second-shaped conductive layer comprising a lamination of a first conductive layer with a first width, a second conductive layer with a second width, and a third conductive layer with a third width;

10 etching the second conductive layer with the second width and the third conductive layer with the third width to form a third-shaped conductive layer comprising a lamination of a first conductive layer with a fourth width, a second conductive layer with a fifth width, and a third conductive layer with the sixth width; and

15 subjecting the third-shaped conductive layer to a plasma treatment,
wherein a cross-section of edges of the first conductive layer with the fourth width, the second conductive layer with the fifth width, or the third conductive layer with the sixth width has a taper shape.

20 25. A method of manufacturing a wiring board comprising the steps of:

forming a first-shaped conductive layer composed of a stack of a first conductive layer, a second conductive layer, and a third conductive layer on an insulating surface;

etching the second conductive layer and the third conductive layer to form a
25 second-shaped conductive layer comprising a lamination of the first conductive layer, a second conductive layer with a first width, and a third conductive layer with a second width;

etching the first conductive layer to form a third-shaped conductive layer comprising a lamination of a first conductive layer with a third width, the second
30 conductive layer with the first width, and the third conductive layer with the second

width;

etching the second conductive layer with the first width and the third conductive layer with the second width to form a fourth-shaped conductive layer comprising a lamination of a first conductive layer with a fourth width, a second conductive layer with a fifth width, and a third conductive layer with a sixth width; and

subjecting the fourth-shaped conductive layer to a plasma treatment,

wherein a cross-section of edges of the first conductive layer with the fourth width, the second conductive layer with the fifth width, or the third conductive layer with the sixth width has a taper shape.

26. A method of manufacturing a wiring board according to any one of claims 21 to 25, wherein the first conductive layer comprises at least one selected from the group consisting of W and Mo.

27. A method of manufacturing a wiring board according to any one of claims 21 to 25, wherein the second conductive layer comprises Al.

28. A method of manufacturing a wiring board according to any one of claims 21 to 25, wherein the third conductive layer comprises Ti.

29. A method of manufacturing a wiring board according to any one of claims 21 to 25, wherein the plasma treatment is conducted by using oxygen or a gas mainly containing oxygen, or H_2O .

30. A semiconductor device comprising:

a semiconductor layer over a substrate;

a gate insulating film on the semiconductor layer;

a wiring on the gate insulating layer, the wiring having a layered structure including a first conductive layer with a first width as a first layer, a second

conductive layer with a second width smaller than the first width as a second layer, and a third conductive layer with a third width smaller than the second width as a third layer,

wherein a cross-section of edges of the first conductive layer, the second
5 conductive layer, or the third conductive layer has a taper shape.

31. A semiconductor device according to claim 30, wherein the first conductive layer comprises at least one selected from the group consisting of W and Mo.

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32. A semiconductor device according to claim 30, wherein the second conductive layer comprises Al.

33. A semiconductor device according to claim 30, wherein the third
15 conductive layer comprises Ti.

34. A semiconductor device according to claim 30, wherein the second conductive layer is covered with the first conductive layer, the third conductive layer, and an insulating film, and a region contacting the insulating film is oxidized.

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35. A semiconductor device according to claim 30, wherein the semiconductor device is at least one selected from the group consisting of a liquid crystal display device and a light-emitting device.

36. A semiconductor device according to claim 30, wherein the semiconductor device is at least one selected from the group consisting of a personal computer, a player using a recording medium, and a display.

37. A method of manufacturing a semiconductor device comprising the
30 steps of:

forming a semiconductor layer over a substrate;

forming a gate insulating film on the semiconductor layer;

forming a first-shaped conductive layer comprising a lamination of a first conductive layer, a second conductive layer, and a third conductive layer on the gate insulating film;

etching the first conductive layer, the second conductive layer and the third conductive layer to form a second-shaped conductive layer comprising a lamination of the first conductive layer with a first width, a second conductive layer with a second width, and a third conductive layer with a third width; and

etching the second conductive layer with the second width and the third conductive layer with the third width to form a third-shaped conductive layer comprising a lamination of a first conductive layer with a fourth width, a second conductive layer with a fifth width, and a third conductive layer with sixth width,

wherein a cross-section of edges of the first conductive layer, the second conductive layer, or the third conductive layer has a taper shape.

38. A method of manufacturing a semiconductor device comprising the steps of:

forming a semiconductor layer over a substrate;

forming a gate insulating film on the semiconductor layer;

forming a first-shaped conductive layer comprising a lamination of a first conductive layer, a second conductive layer, and a third conductive layer on the gate insulating film;

etching the second conductive layer and the third conductive layer to form a second-shaped conductive layer comprising a lamination of the first conductive layer, a second conductive layer with a first width, and a third conductive layer with a second width;

etching the first conductive layer to form a third-shaped conductive layer comprising a lamination of a first conductive layer with a third width, the second conductive layer with the first width, and the third conductive layer with the second

width; and

- etching the second conductive layer with the first width and the third conductive layer with the second width to form a fourth-shaped conductive layer comprising a lamination of a first conductive layer with a fourth width, a second
5 conductive layer with a fifth width, and a third conductive layer with a sixth width, wherein a cross-section of edges of the first conductive layer, the second conductive layer, or the third conductive layer has a taper shape.

39. A method of manufacturing a semiconductor device comprising the
10 steps of:

- forming a semiconductor layer over a substrate;
forming a gate insulating film on the semiconductor layer;
forming a first-shaped conductive layer comprising a lamination of a first
conductive layer, a second conductive layer, and a third conductive layer on the
15 gate insulating film;
etching the first conductive layer, the second conductive layer and the third
conductive layer to form a second-shaped conductive layer comprising a lamination
of the first conductive layer with a first width, a second conductive layer with a
second width, and a third conductive layer with a third width;
20 etching the second conductive layer with the second width and the third
conductive layer with the third width to form a third-shaped conductive layer
comprising a lamination of a first conductive layer with a fourth width, a second
conductive layer with a fifth width, and a third conductive layer with sixth width;
and
25 subjecting the third-shaped conductive layer to a plasma treatment,
wherein a cross-section of edges of the first conductive layer, the second
conductive layer, or the third conductive layer has a taper shape.

40. A method of manufacturing a semiconductor device comprising the
30 steps of:

forming a semiconductor layer over a substrate;

forming a gate insulating film on the semiconductor layer;

forming a first-shaped conductive layer comprising a lamination of a first conductive layer, a second conductive layer, and a third conductive layer on the gate insulating film;

etching the second conductive layer and the third conductive layer to form a second-shaped conductive layer comprising a lamination of the first conductive layer, a second conductive layer with a first width, and a third conductive layer with a second width;

etching the first conductive layer to form a third-shaped conductive layer comprising a lamination of a first conductive layer with a third width, the second conductive layer with the first width, and the third conductive layer with the second width;

etching the second conductive layer with the first width and the third conductive layer with the second width to form a fourth-shaped conductive layer comprising a lamination of a first conductive layer with a fourth width, a second conductive layer with a fifth width, and a third conductive layer with a sixth width; and

subjecting the fourth-shaped conductive layer to a plasma treatment,

wherein a cross-section of edges of the first conductive layer, the second conductive layer, or the third conductive layer has a taper shape.

41. A method of manufacturing a semiconductor device according to any one of claims 37 to 40, wherein the first conductive layer comprises at least one selected from the group consisting of W and Mo.

42. A method of manufacturing a semiconductor device according to any one of claims 37 to 40, wherein the second conductive layer comprises Al.

43. A method of manufacturing a semiconductor device according to any

one of claims 37 to 40 , wherein the third conductive layer comprises Ti.

44. A method of manufacturing a semiconductor device according to any
one of claims 37 to 40, wherein the plasma treatment is conducted by using oxygen
5 or a gas mainly containing oxygen, or H₂O.

45. A method of manufacturing a semiconductor device according to any
one of claims 37 to 40, wherein the semiconductor device is at least one selected
from the group consisting of a liquid crystal display device and a light-emitting
10 device.

46. A method of manufacturing a semiconductor device according to any
one of claims 37 to 40, wherein the semiconductor device is at least one selected
from the group consisting of a personal computer, a player using a recording
15 medium, and a display.